Stream Assessment Summary Form (Form 2)

Unified Stream Methodology for use in Virginia

Project #	Applicant		Date
2017-890	Green Ridge Recycling and Dispo	4/11/2022	
Ev	aluators	HUC	Locality
	en Walls, WPIT, Emily Beacham, PE, Hannah Bullens	02080205	Cumberland Co.

Stream Name	Reach ID	Length of Impact (L _I) (feet)	Reach Condition Index (RCI)	Impact Factor (IF)	Compensation Requirement (CR) (L _I × RCI × IF)
Reach 1	Impact 1.1	915	1.38	1	1,263
Reach 1	Impact 1.2	60	0.66	1	40
Reach 1	Impact 1.3	181	1.18	1	214
Reach 1	Impact 1.4	352	1.38	1	486
Reach 1	Impact 1.5	66	0.75	1	50
Reach 1	Impact 1.6	68	1.26	1	86
Reach 1	Impact 1.7	143	0.75	1	107
Reach 1	Impact 1.8	59	0.75	1	44
Reach 2	Impact 2.1	1,391	1.32	1	1,836
Reach 2	Impact 2.2	1,066	1.32	1	1,407
Reach 2	Impact 2.3	136	0.75	1	102
Reach 2	Impact 2.4	377	1.26	1	475
Reach 2	Impact 2.5	142	0.69	1	98
Reach 3	Impact 3.1	302	1.13	1	341
Reach 3	Impact 3.2	331	1.15	1	381
Reach 3	Impact 3.3	475	0.52	1	247
Reach 3	Impact 3.4	266	0.59	1	157
Reach 3	Impact 3.5	300	1.26	1	378
Reach 3	Impact 3.6	184	0.46	1	85
Reach 4	Impact 4.1	77	1.11	1	85
Reach 4	Impact 4.1 Sec.	192	1.15	1	221
Reach 4	Impact 4.2	518	1.25	1	648
Reach 4	Impact 4.3	186	0.43	1	80
Reach 5	Impact 5.1	300	1.17	1	351
Reach 5	Impact 5.1 Sec.	134	1.10	1	147
Reach 5	Impact 5.2	131	1.05	1	138
Reach 5	Impact 5.3	155	0.43	1	67
Reach 5	Impact 5.4	179	1.19	1	213
Reach 5	Impact 5.5	206	0.43	1	89
Reach 6	Impact 6.1	326	1.31	1	427
Reach 7	Impact 7.1	363	1.21	1	439
Reach 7	Impact 7.1 Sec.	83	1.23	1	102
Reach 8	Impact 8.1	132	0.49	1	65
Reach 9	Impact 9.1	263	1.44	1	379
Reach 9	Impact 9.1 Sec.	59	1.44	1	85
Reach 9	Impact 9.2	106	1.26	1	134
Reach 9	Impact 9.3	128	0.75	1	96
	Impact RR.1	123	1.24	1	153
	Impact RR.2	166	1.32	1	219
	Impact RR.3	149	1.34	1	200
	Impact EW.1	124	1.21	1	150
	Impact EW.2	195	1.23	1	240 91
	Impact EW.3 Impact EW.4	77 80	1.18 1.24	1 1	99
	Impact EW.4	239	1.24	1	296
	Impact EW.5	132	0.75	1	99
	Total L ₁	11,637	0.75	Total CR	13,106
<u> </u>	, = ₁	11,037		2 Jun CA	15,100

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 915 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Stream Reach 1 - Impact Plate C1.1/Impact 1.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 2.4 3 Score NOTES>> Minimal erosion along meander. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Easement Marginal Low Marginal: Optimal Poor located within portion of High Poor: riparian buffer. Pine Low Suboptimal Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Forest dominated both Riparian areas Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious surfaces, mine left and right bank. (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland Hardwood understory vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay observed. with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Varying root mats; SAV; riffle poole complexes, stable features velocity in stream flow. **Conditional Category** Needle and leaf pack Optimal Suboptimal Marginal Poor Instream present. Minimal Habitat/ amount of woody debris Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.50 Score .

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispose	al Facility, LLC	Cumberland Co.	R3	02080205	3/25/2022	Impact 1.1	915	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, concr		oncrete blocks, s	traightening of cha	annel, channeliza	tion,	NOTES>> Notes to the reach observed.	o alternative was
	Negligible	Mi	nor	Mod	erate	Sev	vere	observeu.	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	in the parameter g 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		•
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream





left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

	For use in ephemeral streams											
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor				
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/28/2022	Impact 1.2	60	1				

Name(s) of Evaluator(s) Stream Name and Information

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 1 - Impact Plate C1.1/Impact 1.2

			ditional Cate					NOTES>> Ch	annei	
	Optimal	Subo	ptimal	Mar	ginal	Po	or	interuppted b	у	
Buffers not	Riparian ,	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	r	
		High	Low	High	Low	High	Low			
	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
Delinesta sin	arian areas along each stream ban	k into Condition Ca	ategories and Cor	ndition Scores usi	ng the	Ensure t	the sums			
	ű									
escriptors. Determine sq	uare footage for each by measurin	g or estimating len	gth and width. C	alculators are pro	vided for you	of % F	Riparian			
escriptors. Determine sq elow.	· ·				vided for you		Riparian equal 100			
escriptors. Determine squelow. Enter the % F	uare footage for each by measurin				vided for you		·			
escriptors. Determine squelow. Enter the % F	uare footage for each by measurin	parian category in			vided for you		qual 100			
escriptors. Determine squelow. Enter the % F	quare footage for each by measurin Riparian Area and Score for each ri Riparian Area> 70%	parian category in			vided for you		qual 100	CI= (Sum % RA * So	cores*0.01)/2	
escriptors. Determine squelow. Enter the % F	quare footage for each by measurin Riparian Area and Score for each ri Riparian Area> 70%	parian category in			vided for you		qual 100	CI= (Sum % RA * St Rt Bank CI >	cores*0.01)/2	
escriptors. Determine squelow. Enter the % F	quare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 70% Score > 1.5	parian category in 30% 0.85			vided for you		100%	`	,	
escriptors. Determine squelow. Enter the % F		30% 30% 30%	the blocks below.			Blocks e	100% 100%	Rt Bank CI >	1.31	

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

40

CR = RCI X LF X IF

INSERT PHOTOS









right bank looking downstraem

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/28/2022 181 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 1 - Impact Plate C1.1/Impact 1.3 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less that diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Floodplain benches present, but not active. Stream channel defined but not incised. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Pine forest Marginal Low Marginal: Optimal Poor hardwood understory. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Very little root mats; SAV; riffle poole complexes, stable features water with minimals **Conditional Category** changes in velocity, Optimal Suboptimal Marginal Poor Instream limted vegetation in Habitat/ particle size, channel Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat lacks undercut are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover banks/woody debris, populations populations. areas of leaf pack 1.5 1.2 0.9 0.5 0.90 Score . observed.

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispose	al Facility, LLC	Cumberland Co.	R4	02080205	3/28/2022	Impact 1.3	181	1
	ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, oil piles, constrictions, livestock Conditional Category NOTES>> No channel alteration observed.								
	Negligible	Mi	nor	Mod	erate	Sev	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered	of the channel	by any of the changing the parameter games and by some some some some some some some some	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	I= (Sum of all C	l's)/5
							COMPENSATI	ON REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 352 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Stream Reach 1 - Impact Plate C1.1/Impact 1.4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 1.6 2.4 3 2.4 Score NOTES>> Several bedrock grade controls observed through the reach. Minimal erosion observed along outer meander. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Pine forest Marginal Low Marginal: Optimal Poor hardwood understory. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Fluctuations root mats; SAV; riffle poole complexes, stable features in velocity observed. **Conditional Category** Woody debris and leaf Optimal Suboptimal Marginal Poor Instream pack was also observed. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.50 Score .

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/25/2022	3/25/2022 Impact 1.4 352 1			
	ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, boil piles, constrictions, livestock Conditional Category Conditional Category Description									
	Negligible	Mi	nor	Mod	erate	Sev	vere	obooi vou.		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	by any of the changing the parameter games and by some some some some some some some some	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	
		RCI= (Sum of all Cl's)/5								
							COMPENSAT	ION REQUIRE	MENT (CR) >>	

INSERT PHOTOS







looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

	For use in ephemeral streams										
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor			
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/28/2022	Impact 1.5	66	1			
Name	e(s) of Evaluator(s) Stream Nam	e and Informa	ation								

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 1 - Impact Plate C1.1/Impact 1.5

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Con	ditional Cate	gory				NOTES>> Ma	ature
	Optimal	Subo	ptimal	Mar	ginal	Po	or	hardwood / p	oine forest
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.		High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	on both side	ss.
		High	Low	High	Low	High	Low		
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5		
descriptors.	arian areas along each stream bank		· ·		· ·	Ensure	he sums		
	uare footage for each by measuring	g or estimating ler	ngth and width. C	calculators are pro	vided for you	of % F	Riparian		
pelow.	of % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100								
pelow. B. Enter the % F	Riparian Area and Score for each ri	parian category in	the blocks below	١.		Blocks 6	qual 100		
3. Enter the % F	Riparian Area and Score for each ri	parian category in	the blocks below			Blocks e	equal 100 100%		
		parian category in	the blocks below			Blocks e			
3. Enter the % F	% Riparian Area> 100% Score > 1.5	parian category in	the blocks below			Blocks e	100%	CI= (Sum % RA * S	·
3. Enter the % F	% Riparian Area> 100%	parian category in	the blocks below			Blocks e		CI= (Sum % RA * S Rt Bank CI >	Scores*0.01)/2 1.50

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >> 50

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

DESCRIBE PROPOSED IMPACT:

	Otile	am A	ssess	ment	Form	ı (For	m 1)			
		Unif	fied Stream N	lethodology f	for use in Vir	ginia				
		For use in	n wadeable chan	nels classified a	s intermittent or	perennial		Impact/CAD	Impact	
Project #	Project Name	е	Locality	Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disp	osal Facility	Cumberland Co.	R4	02080205	3/25/2022	Impact 1.6	68	1	
Name	e(s) of Evaluator(s)	Stream Name	e and Informa	ation						
David Kwas	sniewski, PWD and Eric Myers	Stream Reac	ch 1 - Impact	Plate C1.1/Im	pact 1.6					
. Channel C	Condition: Assess the cross-sec	ction of the stream								
	Optimal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 80 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable	of banks are st Vegetative protect prominent (60-	iew areas of active cted banks. Majority table (60-80%). titon or natural rock -80%) AND/OR tures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on aks. Vegetative ent on 20-40% of	vertical/lateral in incision, flow cor banks. Streambe rooting depth, m	(or excavated), stability. Severe tatained within the ad below average rajority of banks ut. Vegetative	
	point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Translent sediment deposition covers less than 10% of bottom.	stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10 bott	nkfull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of strean sediment. Sec temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and denositi	ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insterosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks is deposition	ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment his absent.	protection present of banks, is not pre Obvious bank sle Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread subterran	on less than 20% of eventing erosion. oughing present. iks on 80-100%. g channel. Greater in bed is covered by outing to instability. channels and/or lean flow.	CI
Score	3	2	2.4		2	1	.6	•	1	2.4
Riparian Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland;	Low Poor: Impervious surfaces, mine			
	ocate man as aparam a cas.	herbaceous and shrub layers or a non-maintained understory.	understory. Recent cutover (dense vegetation).	layer (dbh > 3 inches) present, with <30% tree canopy cover.	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		herbaceous and shrub layers or a non-maintained understory.	Recent cutover (dense vegetation).	inches) present, with <30% tree canopy cover.	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores	1.5	herbaceous and shrub layers or a non-maintained	Recent cutover (dense	inches) present, with <30% tree	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Scores I. Delineate ripa descriptors. 2. Determine squelow.		herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cang or estimating length of the state of the s	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi calculators are pro-	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank	1.5 arian areas along each stream ban tuare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5 % Riparian Area> 100%	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cang or estimating length of the state of the s	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi calculators are pro-	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	Rt Bank CI >	1.50	CI
Delineate ripa escriptors. Determine sq elow.	1.5 arian areas along each stream ban tuare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cang or estimating length of the state of the s	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi calculators are pro-	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50 1.50	<u>CI</u> 1.50
Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAM	1.5 arian areas along each stream ban tuare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5 % Riparian Area> 100%	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cargor estimating ler inparian category in inparian category in its cat	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wodes.	inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi alculators are pro	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ng the vided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Lt Bank CI > NOTES>> Tv reach. Very	1.50 vo pools in little	
Scores Delineate ripa descriptors. Determine squelow. Enter the % F Right Bank Left Bank Left Bank INSTREAM	1.5 arian areas along each stream ban quare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5 % Riparian Area> 100% Score > 1.5 W HABITAT: Varied substrate s	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cag or estimating ler iparian category in	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wodes.	inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using calculators are producted by the canopy cover.	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ng the vided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Lt Bank CI >	1.50 vo pools in little	
Scores Delineate ripa descriptors. Determine squelow. Determine squel	1.5 arian areas along each stream ban uare footage for each by measurin Riparian Area and Score for each ri Riparian Area 100% Score > 1.5 W Riparian Area 100% Score > 1.5 W HABITAT: Varied substrate s root mats; SAV; riffle poole comple	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cang or estimating length of the state of the s	Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wo des. Conditions	inches) present, with https://www.nc.nop/ High 0.85 Indition Scores using a laculators are properties of the state of the st	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Lt Bank CI > NOTES>> Tv reach. Very	1.50 vo pools in little	

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	3/25/2022	3/25/2022 Impact 1.6 68 1			
	ALTERATION: Stream crossipoil piles, constrictions, livestock	Conditional Category observed.								
	Negligible	Mi	nor	Mod	erate	Sev	vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	by any of the changing the parameter games and by some some some some some some some some	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	
							RC	I= (Sum of all C	l's)/5	
							COMPENSAT	ON REQUIRE	MENT (CR) >>	

INSERT PHOTOS



looking upstream





right bank looking downstream

DESCRIBE PROPOSED IMPACT:

	For use in ephemeral streams										
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor			
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/25/2022	Impact 1.7	143	1			
Name	Name(e) of Evaluator(e) Stream Name and Information										

David Kwasniewski, PWD and Eric Myers Stream Reach 1 - Impact Plate C1.1/Impact 1.7

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	nditional Cate	gory				NOTES>> Pi	ne forest	1
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Hardwood u	nderstory.	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginat: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		·	
		High	Low	High	Low	High	Low	j		
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
descriptors.	arian areas along each stream ban		-		•		the sums			
below.	paire rootage for each by measurin	g or estimating le	rigur and widin. C	alculators are pro	ovided for you	of % F	Riparian			
3. Enter the % F	Riparian Area and Score for each ri	parian category ir	n the blocks below	<i>I</i> .		Blocks 6	equal 100			
Right Bank	% Riparian Area> 100%						100%]		I
rtigiit Dalik	Score > 1.5									1
								CI= (Sum % RA * \$	·	1
Left Bank	% Riparian Area> 100%						100%	Rt Bank CI >	1.50	1
	Score > 1.5							Lt Bank CI >	1.50	1

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.75

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

107

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

		For use	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/28/2022	Impact 1.8	59	1

Name(s) of Evaluator(s) Stream Name and Information

David Kwasniewski, PWD and Emily Beachman, PE Stream Reach 1 - Impact Plate C1.1/Impact 1.8

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	nditional Cate	gory				NOTES>> Do	ominated	1
	Optimal	Subo	ptimal	Mar	ginal	P	oor	mostly by pi	nes.	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Marginat: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		High	Low	High	Low	High	Low			
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
descriptors.	arian areas along each stream banl quare footage for each by measurin		· ·				the sums Riparian			
3. Enter the % F	Riparian Area and Score for each ri	parian category ir	the blocks below	v.		Blocks 6	equal 100			
Right Bank	% Riparian Area> 100%						100%			
Nigiit Dalik	Score > 1.5									
								CI= (Sum % RA * S	Scores*0.01)/2	L
Left Bank	% Riparian Area> 100%						100%	Rt Bank CI >	1.50	L
Lon Dank	Score > 1.5							Lt Bank CI >	1.50	L

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.75

44

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS







left bank looking downstream





right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** SAR# Locality Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/28/2022 1.391 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 2 - Impact Plate C1.2/Impact 2.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.4 Score NOTES>> Some erosion on outer meanders. Bedrock as grade control, more cobbles observed than intermittent portion of reach. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Easement Marginal Low Marginal: Poor Optimal located within portion of High Poor: Lawns, mowed, and maintained riparion buffer. Non-maintained, dense herbaceou Low Suboptimal Riparian areas ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries: Impervious (dbh > 3 inches) present, with > nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian 30% tree canopy either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low Low High Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddeness; shade; NOTES>> Fluctations in root mats; SAV; riffle poole complexes, stable features velocity, leaf pack. **Conditional Category** Woddy debris observed, Poor Optimal Suboptimal Marginal Instream cobbles in riffle. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically presen present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the r are adequate for maintenance of Cover populations. populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/28/2022	Impact 2.1	1,391	1
	L ALTERATION: Stream cross	ings, riprap, concr	rete, gabions, or o	oncrete blocks, st	traightening of cha	annel, channeliza	tion,	NOTES>> Notes	
			Condition	al Category					
	Negligible	Miı	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the chan in the parameter of 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>
							CR = RC	I X LF X IF	

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality HUC SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/28/2022 1.066 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 2 - Impact Plate C1.2/Impact 2.2 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 2.4 3 Score NOTES>> Upstream of 2.1 and downstream of 2.3. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> somewhat Optimal Marginal Low Marginal: Poor open understory, High Poor: hardwood forest. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries: Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank 1.5 Lt Bank CI > 1.50 1.50 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> 30% of root mats; SAV; riffle poole complexes, stable features channel has great **Conditional Category** habitat. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	3/28/2022	Impact 2.2	1,066	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> Notes has been made	
			Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
IOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

D - DOLVIE VIE

CR = RCI X LF X IF

INSERT PHOTOS



looking upstream



left bank looking downstream



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

		For use	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/28/2022	Impact 2.3	136	1

Name(s) of Evaluator(s) Stream Name and Information

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 2 - Impact Plate C1.2/Impact 2.3

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	iditional Cate	gory			
	Optimal	Subo	ptimal	Mar	ginal	Po	oor
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	with tree stratum (dbh > 3 inches) present, with >30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Margina: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5
Delineate ripa descriptors.	arian areas along each stream bank	c into Condition C	ategories and Co	ndition Scores us	ing the	Ensure	the sums

NOTES>> Somewhat open understory, otherwise hardwood forest-tulip popular.

2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian

3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Blocks equal 100 100% 100% % Riparian Area> Right Bank Score > 1.5

% Riparian Area> 100% 100% Rt Bank CI > 1.50 CI Left Bank Score > 1.5 Lt Bank CI > 1.50 1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.75

CI= (Sum % RA * Scores*0.01)/2

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >> 102

CR = RCI X LF X IF

INSERT PHOTOS:





left bank looking downstream



looking downstream



right bank looking downstraem

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** SAR# Locality Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/1/2022 377 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 2 - Impact Plate C1.2/Impact 2.4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% of stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.4 Score Channel does not have access to a floodplain. Little to no erosion observed, no downcuttting or incision or agradation. NOTES>> 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Mature pine Marginal Low Marginal: Poor Optimal forest with hardwood High Poor: Lawns, mowed, and maintained understory. Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries: Impervious (dbh > 3 inches) present, with > nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian 30% tree canopy either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low Low High Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddeness; shade; NOTES>> Middle portion root mats; SAV; riffle poole complexes, stable features of reach (w/ water) had **Conditional Category** habitat elements, Poor Optimal Suboptimal Marginal Instream upslope and downslope Habitat/ had no habitat. Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically presen present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the r are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 0.90 Score .

Project # Applicant		St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Channel Alteration Channel Channel Channel Alteration or has naturalized. Channel Channe	Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
Channel Alteration Channel Channel Alteration Channel	2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	4/1/2022	Impact 2.4	377	1
Negligible Minor Moderate Severe			ings, riprap, concr	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	tion,		
Channel Alteration Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelization or hardening absent. Stream has an unaltered pattern or has naturalized. Channelization, dredging, alteration, or hardening absent. Stream has bean unaltered pattern or has naturalized. SCORE 1.5 1.3 1.1 0.9 0.7 0.5 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH OTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. Alteration is ted in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered pattern has not recovere	-			Condition	al Category					
Channel Alteration Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. SCORE 1.5 1.3 1.1 20.40 of the channel alterations listed in the parameter guidelines. In the parameter guidelines and parameter guidelines. In the parameter guidelines and parameter guidelines. In the pa		Negligible	Miı	nor			Se	vere		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH OTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of all Cl's)/5 COMPENSATION REQUIREMENT (CR) >>	Channel Alteration	hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks shriprap, o	net alterations listed guidelines AND/OR lored with gabion, r cement.	1	
THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of all Cl's)/5 COMPENSATION REQUIREMENT (CR) >>	SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
RCI= (Sum of all Cl's)/5 COMPENSATION REQUIREMENT (CR) >>		REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
COMPENSATION REQUIREMENT (CR) >>	OTE: The Cls and R	RCI should be rounded to 2 decimal places. T	The CR should be roun	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
								RC	I= (Sum of all C	l's)/5
CR = RCI X LF X IF								COMPENSAT	ION REQUIRE	MENT (CR) >>
								CR = RC	I X LF X IF	

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

		For us	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	4/1/2022	Impact 2.5	142	1
Name	v(c) of Evaluator(c) Stroam Nam	a and Informa	ation					

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 2 - Impact Plate C1.2/Impact 2.5

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Con	ditional Cate	gory			
	Optimal	Subo	ptimal	Mar	ginal	Po	or
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	present, with >30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Margina: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, o other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> Recently cleared and regrown with pine. Young and small for upstream buffer. Downstream portion of reach has tree buffer.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the

descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you

of % Riparian B. Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 60% 40% 100% % Riparian Area> Right Bank 1.2 Score > 1.5

% Riparian Area> 60% 40% 100% Rt Bank CI > 1.38 CI Left Bank Score > 1.5 1.2 Lt Bank CI > 1.38 1.38

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >>

CI= (Sum % RA * Scores*0.01)/2

0.69

98

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream



Ensure the sums

looking downstream



right bank looking downstream

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/1/2022 302 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute AND/OR Aggrading channel, Greate sediment deposition covers less than ediment covers 10-40% of the stres stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 1.6 Score DS impact of 3.4, channel does not have well-defined bed+bank. Many grade contours observed. Erosion and vertical banks near NOTES>> confulence of 3.4 and US, up to 4 feet bertical banks near confluence with main channel (DS) 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Some Optimal Marginal Low Marginal: Poor previously cleared areas High Poor: in buffer, now Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal overgrown. Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 80% 100% Right Bank 0.85 1.5 Score > 100% 1.37 CI 80% 20% Rt Bank CI > % Riparian Area> Left Bank 1.5 0.85 Lt Bank CI > 1.37 1.37 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Pools, leafstable features root mats; SAV; riffle poole complexes, pack, woody debris. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the r are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R3	02080205	4/1/2022	Impact 3.1	302	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alteration.
	·		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		•
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	il's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

PRINCE VIEWEN

CR = RCI X LF X IF

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/1/2022 331 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.2 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Channel banks were inconsistent, some erosion present. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Left bank was Marginal Low Marginal: Optimal Poor recently cleared with High Poor: trees and right bank was Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal recently cleared with Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious very few trees. (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% 0.85 CI 100% Rt Bank CI > % Riparian Area> Left Bank 1.2 Lt Bank CI > 1.20 1.03 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Inconsistent root mats; SAV; riffle poole complexes, stable features water depth, few pools. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/1/2022	Impact 3.2	331	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or c	oncrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alteration.
			Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the chan in the parameter 80% of banks st	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	Cl's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

		For us	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	4/1/2022	Impact 3.3	475	1
Name	o(c) of Evaluator(c) Stream Name	o and Informa	tion					

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.3

RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) Conditional Category

	Optimal	Subo	ptimal	Mar	ginal	Po	or
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with	lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, o other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> Left bank was recently cleared with trees and right bank was recently cleared with very few trees.

lescriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian

3. Enter the % Riparian Area and Score for each riparian category in the blocks below

Blocks equal 100 100% 100% % Riparian Area> Right Bank Score > 1.2 CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 100% 100% Rt Bank CI >

CI Left Bank Score > 0.85 Lt Bank CI > 0.85 1.03

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.52

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >> 247

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream



looking downstream



right bank looking downstream

		For use	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	4/1/2022	Impact 3.4	266	1

Name(s) of Evaluator(s) Stream Name and Information

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.4

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

•		Con	ditional Cate	gory		•		NOTES>> Previously
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	cleared area in state o
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Margina: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	actively grazed	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	
descriptors.	arian areas along each stream bank quare footage for each by measuring		ŭ				the sums Riparian	
3. Enter the % I	Riparian Area and Score for each ri	parian category ir	the blocks below	1.		Blocks 6	equal 100	
	=00/	==0/					4000/	

50% 100% Right Bank 0.85 1.5

50% 50% 100% Rt Bank CI > CI Left Bank Lt Bank CI > Score > 1.5 0.85 1.18 1.18

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.59

CI= (Sum % RA * Scores*0.01)/2

RCI= (Riparian CI)/2 COMPENSATION REQUIREMENT (CR) >>

157 CR = RCI X LF X IF

state of

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/1/2022 300 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.5 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 2.4 3 Score NOTES>> Some steep, but low banks (less than 1 foot). 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Left bank was Optimal Marginal Low Marginal: Poor recently cleared with High Poor: trees and right bank was Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal recently cleared with Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious very few trees. (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 20% 80% 100% Right Bank 0.85 1.2 Score > 100% Rt Bank CI > 0.92 CI 20% 80% % Riparian Area> Left Bank 1.2 0.85 Lt Bank CI > 0.92 0.92 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Undercut stable features root mats; SAV; riffle poole complexes, banks, pools were **Conditional Category** observed. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations. populations. 1.5 1.2 0.9 0.5 1.50 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/1/2022	Impact 3.5	300	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alteration.
	·		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

		For us	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	4/1/2022	Impact 3.6	184	1
Name	o(c) of Evaluator(c) Stroam Nam	and Informa	ation					

David Kwasniewski, PWD and Emily Beacham, PE Stream Reach 3 - Impact Plate C1.3/Impact 3.6

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Con	iditional Cate	gory			
	Optimal	Subo	ptimal	Mar	ginal	Po	oor
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	>30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Margmar. Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, o other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5
1 Delineate rine	rion areas along each atreem bonl	into Condition C	atagarias and Ca	ndition Coores us	ing the		

NOTES>> Left bank was recently cleared with trees and right bank was recently cleared with very few trees.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the

descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you

80%

B. Enter the % Riparian Area and Score for each riparian category in the blocks below

Ensure the sums of % Riparian Blocks equal 100

20% 80% 100% % Riparian Area> Right Bank 0.85 Score > 1.2 CI= (Sum % RA * Scores*0.01)/2

Left Bank Score > 1.2 0.85 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

20%

THE REACH CONDITION INDEX (RCI) >> 0.46

0.92

CI

0.92

RCI= (Riparian CI)/2

Rt Bank CI >

Lt Bank CI >

COMPENSATION REQUIREMENT (CR) >> 85

CR = RCI X LF X IF

100%

INSERT PHOTOS



% Riparian Area>



left bank looking downstream





right bank looking downstream

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 77 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 4 - Impact Plate C1.4/Impact 4.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 2.0 Score NOTES>> Erosion present on 40% of banks. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Left bank and Optimal Marginal Low Marginal: Poor right bank prominently High Poor: young hardwoods. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% 0.85 CI 100% Rt Bank CI > % Riparian Area> Left Bank 0.85 Lt Bank CI > 0.85 0.85 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Some leaf root mats; SAV; riffle poole complexes, stable features packs present. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser in greater than 50% of the reach. present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	4/6/2022	Impact 4.1	77	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	oncrete blocks, st	traightening of cha	annel, channeliza	ation,	NOTES>> N	o alterations
			Condition	al Category					
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks si	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The CIs and R	CI should be rounded to 2 decimal places. 1	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
						-	RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS







left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 Impact 4.1 Sec 192 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hanna Stream Reach 4 - Impact Plate C1.4/Impact 4.1 Sec. 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 2.0 Score NOTES>> Poor condition upstream 60%, suboptimal downstream 40% 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> The right bank Marginal Low Marginal: Optimal Poor is a young hardwood High Poor: forest. The left bank has Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal some large trees but Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious <60% canopy. (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% Rt Bank CI > 0.85 CI 100% % Riparian Area> Left Bank 1.2 Lt Bank CI > 1.20 1.03 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Limited root mats; SAV; riffle poole complexes, stable features changes in flow velocity. **Conditional Category** no undercut banks. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R3	02080205	4/6/2022	Impact 4.1 Sec.	192	1
	L ALTERATION: Stream cross	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations
			Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS













right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 518 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 4 - Impact Plate C1.4/Impact 4.2 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 3.0 Score NOTES>> Intermittent stream; bankfull indicators weak. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Young Marginal Low Marginal: Optimal Poor hardwood forest. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% 0.85 CI 100% Rt Bank CI > % Riparian Area> Left Bank 0.85 Lt Bank CI > 0.85 0.85 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Woody and root mats; SAV; riffle poole complexes, stable features leafy debris present, 2 **Conditional Category** frogs. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 0.90 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact 4.2	518	1
	L ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	oncrete blocks, st	raightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations
			Conditiona	al Category					
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	of - 50% of Heading and of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% by any of the char in the parameter 80% of banks si	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
						-	RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia Cowardin Impact/SAR Impact Project # **Project Name** Locality HUC Date SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 02080205 4/6/2022 Name(s) of Evaluator(s) Stream Name and Information Kristen Walls, WPIT, Emily Beacham, PE and Hannah Stream Reach 4 - Impact Plate C1.4/Impact 4.3 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Young Optimal Marginal Poor hardwood forest. ow margina High Poor: ow Suboptimal Non-maintained, High Suboptima Riparian areas High Marginal: ense herbaceou Riparian areas with tree stratum (dbh > 3 inches) and maintained Low Poor: with tree stratum (dbh > 3 inches) vegetation, riparian areas Impervious surfaces, mine areas, nurseries no-till cropland; present, with vegetation with acking shrub and Tree stratum (dbh > 3 inches) present to 60% tree actively grazed spoil lands, 30% tree canopy cover and a maintained either a shrub layer or a tree layer (dbh > 3 tree stratum, hay production, ponds open water. If Riparian pasture, sparsely vegetated non-maintained area, with > 60% tree canopy cover and an non-maintained understory. Wetlands nuded surfac row crops, active feed lots, trails, or **Buffers** containing both understory. inches) present present, tree herbaceous and recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree Recent cutove with <30% tree shrub layers or a non-maintained and stabilized, o conditions (dense vegetation). canopy cover other comparabl understory. condition anopy cover with maintained High Low High Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian B. Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 100% 100% % Riparian Area> Right Bank 0.85 Score > CI= (Sum % RA * Scores*0.01)/2 % Riparian Area> 100% 100% Rt Bank CI > CI

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

0.85

THE REACH CONDITION INDEX (RCI) >> 0.43

0.85

0.85

80

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

Lt Bank CI >

CR = RCI X LF X IF

INSERT PHOTOS

Left Bank



Score >



left bank looking downstrean



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 300 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 5 - Impact Plate C1.5/Impact 5.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 2.0 Score NOTES>> Poor condition downstream below headcut, better condition upstream. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Some Marginal Low Marginal: Optimal Poor clearning - regrown with High Poor: young hardwoods at US Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal limits. Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries: Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low Low High Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 80% 100% Right Bank 0.85 1.2 Score > 100% 1.13 CI 80% 20% Rt Bank CI > % Riparian Area> Left Bank 1.2 0.85 Lt Bank CI > 1.13 1.13 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Some leaf stable features root mats; SAV; riffle poole complexes, packs and woody debris **Conditional Category** present. Few pools. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically **Available** Habitat elements are typically presen present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations. populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2				
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor		
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact 5.1	300	1		
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations		
	·		Condition	al Category							
	Negligible Minor Moderate Severe										
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.	1			
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5				
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH				
IOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>		
							RC	I= (Sum of all C	l's)/5		
							COMPENSAT	ION REQUIRE	MENT (CR) >>		

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 Impact 5.1 Sec 134 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 5 - Impact Plate C1.5/Impact 5.1 Sec. 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Cat Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 1.6 Score NOTES>> Banks inconsistent, some erosion present. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Large trees Marginal Low Marginal: Optimal Poor approximately 40% High Poor: canopy, small Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal hardwoods below. Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.2 Score > 100% 1.20 CI 100% Rt Bank CI > % Riparian Area> Left Bank 1.2 Lt Bank CI > 1.20 1.20 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Inconsistent root mats; SAV; riffle poole complexes, stable features water depths. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2				
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor		
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022 Impact 5.1 Sec.		134	1		
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci			traightening of ch	annel, channeliz	ation,	NOTES>> N	o alterations.		
	Conditional Category Negligible Minor Moderate Severe										
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	or - 20% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.	1			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5				
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH				
NOTE: The CIs and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>		
							RC	I= (Sum of all C	Cl's)/5		
							COMPENSAT	ION REQUIRE	MENT (CR) >>		

COMPENSATION REQUIREMENT (CR) >> 147

CR = RCI X LF X IF

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 131 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 5 - Impact Plate C1.5/Impact 5.2 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 40% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Observation of stream flow went subsurface and was not consistently flowing throughout the reach. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Young Marginal Low Marginal: Optimal Poor hardwood forest. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% 0.85 CI 100% Rt Bank CI > % Riparian Area> Left Bank 0.85 Lt Bank CI > 0.85 0.85 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Water not root mats; SAV; riffle poole complexes, stable features consistently present. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically presen present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 0.90 Score .

Project #	Applicant		Locality	Cowardin Class.	HUC	rm Pag	Data Point	SAR length	Impact Factor		
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact 5.2	131	1		
. CHANNE	L ALTERATION: Stream crossispoil piles, constrictions, livestock								o alterations		
mbankmente, t	piles, seristrictions, investori		Condition	al Category							
	Negligible Minor Moderate Severe										
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.				
SCORE	1.5	1.3	1.1	0.9	0.7		0.5				
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH				
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>		
							RC	I= (Sum of all C	l's)/5		
						_	COMPENSAT	ION REQUIRE	MENT (CR) >>		

IPENSATION REQUIREMENT (CR) >> 1

INSERT PHOTOS







looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia For use in ephemeral stream Cowardin Impact/SAR Impact Project # **Project Name** Locality HUC Date SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 02080205 4/6/2022 Name(s) of Evaluator(s) Stream Name and Information Kristen Walls, WPIT, Emily Beacham, PE and Hannah Stream Reach 5 - Impact Plate C1.5/Impact 5.3 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Young Optimal Marginal Poor hardwoods. High Poor: ow Suboptimal Non-maintained, High Suboptima Riparian areas High Marginal: ense herbaceou Riparian areas with tree stratum (dbh > 3 inches) and maintained Low Poor: with tree stratum (dbh > 3 inches) vegetation, riparian areas Impervious surfaces, mine areas, nurseries no-till cropland; present, with vegetation with acking shrub and Tree stratum (dbh > 3 inches) present resent, with 30% to 60% tree anopy cover and actively grazed spoil lands, 30% tree canopy cover and a maintained either a shrub layer or a tree layer (dbh > 3 tree stratum, hay production, ponds open water. If Riparian pasture, sparsely vegetated non-maintained area, with > 60% tree canopy cover and an non-maintained understory. Wetlands nuded surfac row crops, active feed lots, trails, or **Buffers** containing both understory. inches) present present, tree herbaceous and recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree Recent cutove with <30% tree shrub layers or a non-maintained and stabilized, o conditions (dense vegetation). canopy cover other comparabl understory. condition. anopy cover with maintained High Low High Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian B. Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 100% 100% % Riparian Area> Right Bank 0.85 Score > CI= (Sum % RA * Scores*0.01)/2

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

100%

0.85

THE REACH CONDITION INDEX (RCI) >>

RCI= (Riparian CI)/2

Rt Bank CI >

Lt Bank CI >

COMPENSATION REQUIREMENT (CR) >>

0.85

CI

0.85

0.43

67

CR = RCI X LF X IF

100%

INSERT PHOTOS

Left Bank



% Riparian Area>

Score >



left bank looking downstrean



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** Green Ridge Recycling and Disposal Facility 4/6/2022 179 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE and Hannal Stream Reach 6 - Impact Plate C1.5/Impact 5.4 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Cat Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 2.4 3 Score NOTES>> Some incision near confluence. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Hardwood Marginal Low Marginal: Optimal Poor forest. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries: Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaceo (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 0.85 Score > 100% 0.85 CI 100% Rt Bank CI > % Riparian Area> Left Bank 0.85 Lt Bank CI > 0.85 0.85 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Leaf packs root mats; SAV; riffle poole complexes, stable features present. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2				
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor		
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact 5.4	179	1		
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations		
	·		Condition	al Category							
	Negligible Minor Moderate Severe										
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.	! 			
SCORE	1.5	1.3	1.1	0.9	0.7	().5				
	REACH C	CONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH				
IOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>		
							RC	I= (Sum of all C	il's)/5		
							COMPENSAT	ION REQUIRE	MENT (CR) >>		

INSERT PHOTOS









DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia For use in ephemeral stre Cowardin Impact/SAR Impact Project # **Project Name** Locality HUC Date SAR# Class lenath **Factor** Green Ridge Recycling and Disposal Facility 02080205 4/6/2022 Name(s) of Evaluator(s) Stream Name and Information Kristen Walls, WPIT, Emily Beacham, PE and Hannah Stream Reach 5 - Impact Plate C1.5/Impact 5.5 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Young Optimal Marginal Poor hardwoods. High Poor: ow Suboptimal Non-maintained, High Suboptima Riparian areas High Marginal: ense herbaceou Riparian areas with tree stratum (dbh > 3 inches) and maintained Low Poor: with tree stratum (dbh > 3 inches) vegetation, riparian areas Impervious surfaces, mine areas, nurseries no-till cropland; present, with vegetation with acking shrub and Tree stratum (dbh > 3 inches) present resent, with 30% to 60% tree anopy cover and actively grazed spoil lands, 30% tree canopy cover and a maintained either a shrub layer or a tree layer (dbh > 3 tree stratum, hay production, ponds open water. If Riparian pasture, sparsely vegetated non-maintained area, with > 60% tree canopy cover and an non-maintained understory. Wetlands nuded surfac row crops, active feed lots, trails, or **Buffers** containing both understory. inches) present present, tree herbaceous and recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree Recent cutove with <30% tree shrub layers or a non-maintained and stabilized, o conditions (dense vegetation). canopy cover other comparabl understory. condition. anopy cover with maintained High Low High Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian B. Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 100% 100% % Riparian Area> Right Bank 0.85 Score > CI= (Sum % RA * Scores*0.01)/2

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

100%

0.85

THE REACH CONDITION INDEX (RCI) >> 0.43

0.85

CI

0.85

89

RCI= (Riparian CI)/2

Rt Bank CI >

Lt Bank CI >

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

100%

INSERT PHOTOS

Left Bank



% Riparian Area>

Score >



left bank looking downstream



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/25/2022 326 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT and Emily Beacham, PE Stream Reach 6 - Impact Plate C1.6/Impact 6.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 3.0 Score NOTES>> No erosion present. Bank height <6 inches. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Easement Marginal Low Marginal: Optimal Poor located within portion of High Poor: riparion buffer. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 20% 80% 100% Right Bank 1.1 0.75 Score > 100% 0.82 CI 30% 70% Rt Bank CI > % Riparian Area> Left Bank 0.75 Lt Bank CI > 0.86 0.84 1.1 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Lack of rfifle stable features root mats; SAV; riffle poole complexes, pool, various velocities, **Conditional Category** silt substrate. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations. populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	3/25/2022 Impact 6.1		326	1	
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr		concrete blocks, s	traightening of ch	annel, channeliza	tion,	NOTES>> C outside ripa	rian buffer.	
	Negligible	Mir	nor	Mod	erate	Ser	vere	Overgrown	with briars.	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. Less than 20% of the stream reach of the channel alterations listed in the parameter guidelines.		20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	of - 50% of reactions of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.		1		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			1
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be roun	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	1
							RC	I= (Sum of all C	l's)/5	
							COMPENSAT	ION REQUIRE	MENT (CR) >>	4

INSERT PHOTOS



looking upstream





left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality HUC SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/6/2022 363 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Stream Reach 6 - Impact Plate C1.7/Impact 7.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Cat Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 2.0 Score NOTES>> Erosion present on 40-60% of banks 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Riparian Optimal Marginal Low Marginal: Poor buffer left around High Poor: stream, outside of buffer Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal clear cut. Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 oroduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 30% 100% Right Bank 0.85 1.5 Score > 100% Rt Bank CI > 1.05 CI 30% 70% % Riparian Area> Left Bank 1.5 0.85 Lt Bank CI > 1.05 1.05 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Varying root mats; SAV; riffle poole complexes, stable features velocites and substrates **Conditional Category** observed. Riffle-pool Optimal Suboptimal Marginal Poor Instream complexes present. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.50 Score

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022 Impact 7.1		363	1	l
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ngs, riprap, concr		concrete blocks, st	traightening of ch	annel, channeliza	ition,	NOTES>> Nation alteration.	o channel	
	Negligible	Mir		Mod	erate	Se	vere			1
Channel Alteration	Less than 20% of the stream reach Channelization, dredging, alteration, oi is disrupted by any hardening absent. Stream has an of the channel		20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	of the channel	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.				
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			1
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			l
VOTE: The CIs and R	CI should be rounded to 2 decimal places.	The CR should be roun	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	1
							RC	I= (Sum of all C	l's)/5	
							COMPENSAT	ION REQUIRE	MENT (CR) >>	4

INSERT PHOTOS



looking upstream



left bank looking downstream



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 4/6/2022 Impact 7.1 Sec 83 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Stream Reach 6 - Impact Plate C1.7/Impact 7.1 Sec. 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. 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AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> 40% of banks exhibiting erosion, particularly along outer meanders. Stream bed not covered by sediment. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Riparian Marginal Low Marginal: Poor Optimal buffer left around High Poor: stream, outside of buffer Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal clear cut. 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If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 60% 100% Right Bank 0.85 1.5 Score > 100% Rt Bank CI > 1.24 CI 30% 70% % Riparian Area> Left Bank 1.5 0.85 Lt Bank CI > 1.05 1.14 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Varying stable features root mats; SAV; riffle poole complexes, velocites and substrates **Conditional Category** observed. Riffle-pool Optimal Suboptimal Marginal Poor Instream complexes present. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.50 Score .

Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor		
2017-890	Green Ridge Recycling and Dispose	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact 7.1 Sec.	83	1		
	L ALTERATION: Stream crossi spoil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	concrete blocks, st	traightening of ch	annel, channeliz	ation,	NOTES>> Notes	o channel		
				al Category							
	Negligible Minor Moderate Severe										
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.	! 			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5				
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		•		
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>		
							RC	I= (Sum of all C	l's)/5		
							COMPENSAT	ION REQUIRE	MENT (CR) >>		

PENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS



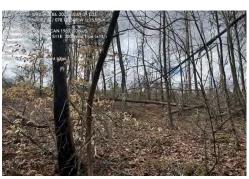
looking upstream







left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

		For use	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	4/6/2022	Impact 8.1	132	1
Nome	(a) of Evaluator(a) Stroom Name	and Informa	tion	·	·	,	·	,

David Kwasniewski, PWD and Eric Myers Stream Reach 8 - Impact Plate C1.8/Impact 8.1

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	ditional Cate	gory				NOTES>> Riparian but
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	left around stream,
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginat: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	outside of buffer clear cut.
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	
lescriptors.	arian areas along each stream bani		Ü				the sums Riparian	
3. Enter the % F	Riparian Area and Score for each ri	parian category ir	the blocks below	<i>I</i> .		Blocks 6	equal 100	
Right Bank	% Riparian Area> 20%	80%					100%	
Night Dalik	Score > 1.5	0.85						7

1.5 0.85 Score >

% Riparian Area> 20% 80% 100% Rt Bank CI > CI Left Bank Score > 1.5 0.85 Lt Bank CI > 0.98 0.98

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.49

65

CI= (Sum % RA * Scores*0.01)/2

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

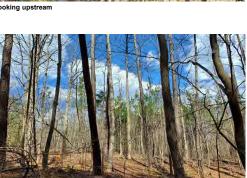
DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/25/2022 263 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE Stream Reach 9 - Impact Plate C1.9/Impact 9.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional (Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 40% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 3.0 Score NOTES>> Stable channel with little erosion. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Mature forest Marginal Low Marginal: Optimal Poor canopy with hardwoods High Poor: and pine. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Bedrock root mats; SAV; riffle poole complexes, stable features present, leaf pack flow **Conditional Category** changes, and shade Optimal Suboptimal Marginal Poor Instream present. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/25/2022	Impact 9.1	263	1	
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	oncrete blocks, st	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations	
	·		Conditiona	al Category						
	Negligible Minor Moderate Severe									
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	().5			
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
IOTE: The Cls and R	CI should be rounded to 2 decimal places. T	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	
							RC	I= (Sum of all C	l's)/5	
							COMPENSAT	ION REQUIRE	MENT (CR) >>	

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

DESCRIBE	PROPOSED	IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Impact/SAR Cowardin Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility Impact 9.1 Sec 59 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE Stream Reach 9 - Impact Plate C1.9/Impact 9.1 Sec. 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Category Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. 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Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Bedrock root mats; SAV; riffle poole complexes, stable features present, leaf pack flow **Conditional Category** changes, and shade Optimal Suboptimal Marginal Poor Instream present. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R3	02080205	3/25/2022	Impact 9.1 Sec.	59	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations.
	·		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		•
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 106 Stream Name and Information Name(s) of Evaluator(s) Kristen Walls, WPIT, Emily Beacham, PE Stream Reach 9 - Impact Plate C1.9/Impact 9.2 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 40% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.4 Score NOTES>> Incised intermittent channel with little access to flood plain. Minor erosion. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Mature forest Marginal Low Marginal: Optimal Poor with hardwoods present High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% 1.50 CI 100% Rt Bank CI > % Riparian Area> Left Bank 1.50 1.50 1.5 Lt Bank CI > 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Not many leaf root mats; SAV; riffle poole complexes, stable features packs present. **Conditional Category** Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 0.90 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R4	02080205	3/25/2022	Impact 9.2	106	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	oncrete blocks, st	traightening of cha	annel, channeliza	ation,	NOTES>> N	o alterations
			Conditiona	al Category					
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	or to work of teach of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any	in the parameter of 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
IOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be roun	nded to a whole number	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ON REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



left bank looking downstream



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

		For us	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/25/2022	Impact 9.3	128	1

Name(s) of Evaluator(s) Stream Name and Information

Kristen Walls, WPIT, Emily Beacham, PE Stream Reach 9 - Impact Plate C1.9/Impact 9.3

RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Con	ditional Cate	gory				NOTES>> M	ature forest	
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	with canopy	that	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrue layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginat: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparselly wegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	includes pin hardwoods.	es and	
		High	Low	High	Low	High	Low			
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
Delineate ripa descriptors.	arian areas along each stream ban	k into Condition C	ategories and Co	ndition Scores us	ing the	Ensure	the sums			
	uare footage for each by measurin	g or estimating le	ngth and width. C	Calculators are pro	ovided for you	of % F	Riparian			
Enter the % F	Riparian Area and Score for each ri	parian category ir	the blocks below	/ .		Blocks 6	equal 100			
Right Bank	% Riparian Area> 100%						100%			
rtigiit Dalik	Score > 1.5									_
								CI= (Sum % RA *	3cores*0.01)/2	┺
Left Bank	% Riparian Area> 100%						100%	Rt Bank CI >	1.50	
Lon Dank	Score > 1.5							Lt Bank CI >	1.50	

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.75

96

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS





left bank looking downstream





right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 02080205 3/25/2022 123 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Impact Plate C1.10/Impact RR.1 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute AND/OR Aggrading channel, Great sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom eposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of th 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 2.3 Score Channel does not have access to its floodplain. Erosion observed along outer meander and toe of slope. Herbaceous NOTES>> vegetation observed stabilizing bank as well as mature trees along banks. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Easement Marginal Low Marginal: Optimal Poor located within portion of High Poor: riparion buffer. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover ther comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low Low High Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Limited leaf root mats; SAV; riffle poole complexes, stable features pack in stream bed **Conditional Category** observed. No undercuts Optimal Suboptimal Marginal Poor Instream observed. Limited Habitat/ change in velocity. Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat Cobbles were observed are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover in the lower stretch of populations populations. the reach. 1.5 1.2 0.9 0.5 0.90 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	3/25/2022	Impact RR.1	123	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> N	o alterations.
	·		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted inel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		•
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be roun	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS









right bank looking downstream

DESCRIBE PROPOSED IMPACT:

	Stre	am A	ssess	ment	Form	ı (For	m 1)			
					for use in Vir					
				nels classified a	s intermittent or			Impact/SAR	Impact	
Project #	Project Name	e	Locality	Class.	HUC	Date	SAR#	length	Factor	
2017-890	Green Ridge Recycling and Disp	osal Facility	Cumberland Co.	R3	02080205	3/25/2022	Impact RR.2	166	1	
	e(s) of Evaluator(s)									
David Kwas	sniewski, PWD and Eric Myers	Impact Plate	C1.10/Impac	t RR.2						
I. Channel C	Condition: Assess the cross-sec	ction of the stream								
	Optimal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
Channel	Very little incision or active erosion; 80 100% stable banks. Vegetative surface protection or natural rock,	of banks are st Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tition or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. resent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. r unstable. Likely to jority of both banks Erosion present on	vertical/lateral in incision, flow cor	(or excavated), stability. Severe ntained within the ed below average	
Condition	prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, rd floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. Sec temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may errout. AND/OR 40- n is covered by diment may be issient, contribute to that contribute to e forming/present. sed channels have ion on > 40% of the ional features which	protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	nks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. bed channels have tion is present on > and stable sediment n is absent	vertical/underc protection present of banks, is not pre Obvious bank sla Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	oughing present. aks on 80-100%. g channel. Greater bed is covered by buting to instability. channels and/or	CI
Score	3	2	2.4		2		.6		1	2.4
NOTES>>					is preventing					
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present,	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed	Low Poor: Impervious surfaces, mine	bank. Hardw understory p		
		shrub layers or a non-maintained understory.	Recent cutover (dense vegetation).	with <30% tree canopy cover.	open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		shrub layers or a non-maintained	Recent cutover (dense	with <30% tree	present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	vegetated non- maintained area, recently seeded and stabilized, or other comparable	denuded surfaces, row crops, active feed lots, trails, or other comparable			
Condition Scores	1.5	shrub layers or a non-maintained understory.	Recent cutover (dense vegetation).	with <30% tree canopy cover.	present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Scores 1. Delineate ripa descriptors. 2. Determine squelow.	1.5 arian areas along each stream ban uare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5	shrub layers or a non-maintained understory. High 1.2 k into Condition Cag or estimating len	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	with <30% tree canopy cover. High 0.85 Indition Scores usial culators are pro	present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained underston Low 0.75	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank	arian areas along each stream ban uare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100%	shrub layers or a non-maintained understory. High 1.2 k into Condition Cag or estimating len	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	with <30% tree canopy cover. High 0.85 Indition Scores usial culators are pro	present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained underston Low 0.75	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	Rt Bank CI >	1.50	CI
Scores Delineate ripa descriptors. Determine squelow. Below.	arian areas along each stream banduare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5	shrub layers or a non-maintained understory. High 1.2 k into Condition Cag or estimating len	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and cutover (dense vegetation).	with <30% tree canopy cover. High 0.85 Indition Scores usial culators are pro	present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained underston Low 0.75	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50 1.50	CI 1.5(
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	arian areas along each stream banduare footage for each by measuring Riparian Area and Score for each risk Riparian Area and Score for each risk Riparian Area 100% Score > 1.5	shrub layers or a non-maintained understory. High 1.2 k into Condition Ca g or estimating ler parian category in	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wodes.	with <30% tree canopy cover. High 0.85 Indition Scores using alculators are processed alculators are processed alculators.	present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained underston. Low 0.75 ing the ovided for you	vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % 6 Blocks 6	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Lt Bank CI > NOTES>> Va velocities we	1.50 arying	
Scores 1. Delineate ripa descriptors. 2. Determine squebelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	arian areas along each stream banduare footage for each by measuring Riparian Area and Score for each risk Riparian Area and Score for each risk Riparian Area 100% Score > 1.5 WHABITAT: Varied substrate significant area substrate significant area substrates in the stream of the s	shrub layers or a non-maintained understory. High 1.2 k into Condition Cag or estimating ler parian category in parian category in tizes, water velocity exes, stable feature	Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wodes.	with <30% tree canopy cover. High 0.85 Indition Scores using alculators are processed and leafy debt all Category	present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained underston. Low 0.75 ing the ovided for you	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Lt Bank CI >	1.50 arying	
Scores 1. Delineate ripa descriptors. 2. Determine squeleow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	arian areas along each stream ban uare footage for each by measurin Riparian Area and Score for each ri % Riparian Area> 100% Score > 1.5 % Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate si root mats; SAV; riffle poole comple	shrub layers or a non-maintained understory. High 1.2 k into Condition Ca g or estimating ler parian category in Zes, water velocity exes, stable feature Subo Stable habitat eler present in 30-509 are adequate for	Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wo des. Conditions	with <30% tree canopy cover. High 0.85 Indition Scores using alculators are properties of the control of the	present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained underston. Low 0.75 ing the ovided for you	vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Lt Bank CI > NOTES>> Va velocities we	1.50 arying	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/25/2022	Impact RR.2	166	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr		oncrete blocks, s	traightening of ch	annel, channeliza	tion,	has occurre	No alteration ed within the
	Negligible	Mi	nor		erate	Se	vere	rea	ach.
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	or - 20% Or Teach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places. T	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 02080205 4/6/2022 Impact RR.3 149 Stream Name and Information Name(s) of Evaluator(s) David Kwasniewski, PWD and Eric Myers Impact Plate C1.0B/Impact RR.5 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or deposition is absent subterranean flow. 2.4 3 3.0 Score NOTES>> Little erosion observed. Stream has access to original flood plain. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> the leftbank Marginal Low Marginal: Optimal Poor has mature pine with High Poor: hardwood understory Non-maintained, dense herbaceou Low Suboptimal Riparian areas ligh Suboptima High Marginal and the rightbank has a Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious surfaces, mine mature pine hardwood (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland understory with the vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay lower reach a hardwood with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or forest. located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low Low High Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Minimal flow; root mats; SAV; riffle poole complexes, stable features channel thalweg has a **Conditional Category** large amount of leaves. Optimal Suboptimal Marginal Poor Instream Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 0.90 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Dispos	al Facility, LLC	Cumberland Co.	R4	02080205	4/6/2022	Impact RR.3	149	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc			traightening of ch	annel, channeliza	tion,	NOTES>> C	
				al Category				and actively	conveying
	Negligible	Mi	nor	Mod	erate	Se	vere	surface flow	s.
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSATI	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS



looking upstream



looking downstream



left bank looking downstrear



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 3/16/2022 Impact EW.1 124 Stream Name and Information Name(s) of Evaluator(s) Impact Plate C1.11/Impact EW.1 David Kwasniewski, PWD and Emily Beacham, PE 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% of bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of th 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 1.6 2.4 Score Well defined bed and bank, approximately 30% of banks are incised, bedrock was observed in the bed of channel to occupy NOTES>> approximately 90% of impact reach 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Easement Marginal Low Marginal: Optimal Poor located within portion of High Poor: riparian buffer. Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 50% 100% Right Bank 0.85 1.5 Score > 100% Rt Bank CI > 1.18 CI 30% 20% 50% % Riparian Area> Left Bank 1.2 0.6 0.5 Lt Bank CI > 0.73 0.95 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Channel root mats; SAV; riffle poole complexes, stable features observations leaf pack, **Conditional Category** changing velocities, Optimal Suboptimal Marginal Poor Instream woody debris. Stream Habitat/ would be shaded when Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat leafs are on the trees. are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the r are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/16/2022	Impact EW.1	124	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or c	concrete blocks, s	traightening of ch	annel, channeliza	tion,	NOTES>> N	
				al Category				Hwy 60 is lo	cated
	Negligible	Mi	nor	Mod	erate	Se	vere	approximate	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	in the parameter of 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, or cement.	the channel	
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
OTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5
							COMPENSATI	ON REQUIRE	MENT (CR) >>

INSERT PHOTOS:



looking upstream



looking downstream



left bank looking downstream

DESCRIBE PROPOSED IMPACT:



ini ngir bank looking downstr

	Stre	am A	ssess	sment	: Form	ı (For	M 1)		
				lethodology f					
			n wadeable chan	nels classified a	s intermittent or	perennial		Impact/SAR	Impact
Project #	Project Nam	е	Locality	Class.	HUC	Date	SAR#	length	Factor
2017-890	Green Ridge Recycling and Dis	oosal Facility	Cumberland Co.	R3	02080205	3/16/2022	Impact EW.2	195	1
Nam	ne(s) of Evaluator(s)	Stream Nam	e and Informa	ation					
David Kwa	sniewski, PWD and Emily Beacham, PE	Impact Plate	C1.11/Impac	t EW.2					
Channel	Condition: Assess the cross-se	ation of the atroom	and provailing of	andition (oranion	oggradation)				
. Chammer	Condition. Assess the cross-se	ction of the stream		Conditional Catego	ry				
	Optimal	Subo	ptimal	Mar	ginal	Po	or	Sev	ere
Channel Condition	Very little incision or active erosion; 81 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than	erosion or unproted of banks are si Vegetative protect prominent (60- Depositional feat stability. The ban channels are wel likely has access to or newly develope portions of the r	ew areas of active ted banks. Majority table (60-80%). tion or natural rock 80%) AND/OR tures contribute to have a full bankfull and low flow II defined. Stream o bankfull benches, di floodplains along each. Transient	Poor. Banks more or Poor due to Ic Erosion may be pro both banks. Veget 40-60% of banks, bevertical or unde 60% of stream sediment. Sed temporary/tran- instability. Depositir	less than Severe or stable than Severe over bank slopes. esent on 40-60% of tative protection on Streambanks may rerut. AND/OR 40 is covered by diment may be sient, contribute on that contribute to that contribute to the stable sient.	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri	ned/incised. unstable. Likely to lority of both banks Erosion present on ss. Vegetative ent on 20-40% of fifficient to prevent R 60-80% of the ed by sediment, oorary/transient in buting to instability.	vertical/lateral in incision, flow cor banks. Streambe rooting depth, restricted protection present of banks, is not pre Obvious bank slerosion/raw bar AND/OR Aggradin	ed below average najority of banks aut. Vegetative on less than 20% of eventing erosion. oughing present. iks on 80-100%. g channel. Greater
Score	10% of bottom.	bott	0-40% of the stream tom.	AND/OR V-shape vegetative protecti banks and depositi	e forming/present. ed channels have ion on > 40% of the ional features which. 2	vegetative protect 40% of the banks a deposition	ed channels have ion is present on > and stable sediment is absent.	than 80% of stream deposition, contrib Multiple thread subterran	uting to instability. channels and/or
Score	3		.4	1			.0		
RIPARIA	N BUFFERS: Assess both ban Optimal	Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po	may be acceptal	NOTES>> Reg area was obse of the forested	erved outside
Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	Po		NOTES>> Reg area was obse	erved outside
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained underston.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> Reg area was obse	erved outside
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> Reg area was obse	erved outside
Riparian Buffers Condition Scores Delineate rip escriptors Determine scores	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 parian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each row Riparian Area 160%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Co	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are pro-	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> Reg area was obse	erved outside
Riparian Buffers Condition Scores Delineate ripescriptors. Determine selow. Enter the % Right Bank	Optimal Tree stratum (dbh > 3 inches) present with > 60% free canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 Darian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each results with the riparian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each results with the riparian areas along each stream ban quare footage for each stream ban quare fo	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Co	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are pro-	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Reg area was obse	erved outside
Riparian Buffers Condition Scores Delineate ripescriptors. Determine stelow. Enter the %	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each results of the street of the stree	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Ca g or estimating ler iparian category in 40% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are pro-	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Reg area was obse of the forested	erved outside
Riparian Buffers Condition Scores Delineate rip lescriptors. Determine so lelow. Right Bank Left Bank B. INSTREA	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 Darian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each resulting the street of the stree	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Ci og or estimating ler iparian category in 40% 0.85 50% 0.85 izes, water velocity exes, stable feature	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below y and depths; wodes. Condition	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi alculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained undarstow. Low 0.75 ng the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-fill cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Reg area was obse of the forested of the forested the forested of the forested of the forested Rt Bank CI > Lt Bank CI > NOTES>> Universed outer meando	1.06 1.03 dercutting along the rs, woody
Riparian Buffers Condition Scores Delineate rip lescriptors. Determine scelow. Right Bank Left Bank B. INSTREA undercut banks Instream	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each result of the score in the sc	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Ci og or estimating ler iparian category in 40% 0.85 50% 0.85 izes, water velocity exes, stable feature	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co oright and width. Co the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi alculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ng the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-fill cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	NOTES>> Reg area was observed outer meando debris and lea	1.06 1.03 deroutting around for pack was
Riparian Buffers Condition Scores Delineate rip lescriptors. Determine svelow. Enter the % Right Bank Left Bank Instread	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 Darian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each resulting the street of the stree	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Ca to g or estimating ler sparian category in 40% 0.85 50% 0.85 izes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below y and depths; wodes. Condition	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with https://doi.org/10.30% tree canopy cover. High 0.85 Indition Scores using alculators are properties of the control of t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained undarstow. Low 0.75 ng the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Reg area was obse of the forested of the forested the forested of the forested of the forested Rt Bank CI > Lt Bank CI > NOTES>> Universed outer meando	1.06 1.03 dercutting along the rs, woody f pack was the stream am would be

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/16/2022	Impact EW.2	195	1	
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ngs, riprap, concr			raightening of ch	annel, channeliza	tion,	NOTES>> No observed.	alteration	
	Negligible	Mii		al Category Mod	erate	Sev	vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	of the channel	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			•
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			
IOTE: The Cls and R	CI should be rounded to 2 decimal places. T	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	1
							RC	I= (Sum of all C	l's)/5	
							COMPENSAT	ION REQUIRE	MENT (CR) >>	•

INSERT PHOTOS:



looking upstream



looking downstream



left bank looking downstream



DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 02080205 3/18/2022 Impact EW.3 77 Stream Name and Information Name(s) of Evaluator(s) Impact Plate C1.11/Impact EW.3 David Kwasniewski, PWD and Kristen Walls, WPI7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative stability. The bankfull and low flow ection present on less than 20% bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the strea stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom. deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Relict benches observed. Stream channel had recent sediment accumulation in the channel bed. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Regeneration Marginal Low Marginal: Optimal Poor area was observed High Poor: outside of the forested Low Suboptimal Riparian areas Non-maintained, dense herbaceou Lawns, mowed, and maintained ligh Suboptima High Marginal area along right bank. Riparian areas Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced (dbh > 3 inches) no-till cropland vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 40% 100% Right Bank 0.75 1.2 Score > 100% Rt Bank CI > 0.93 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.22 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Leaf pack and root mats; SAV; riffle poole complexes, stable features woody debris was **Conditional Category** observed within stream Optimal Suboptimal Marginal Poor Instream channel. Habitat/ Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover populations populations. 1.5 1.2 0.9 0.5 1.20 Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/18/2022	Impact EW.3	77	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	rete, gabions, or c	concrete blocks, st	traightening of cha	annel, channeliza	ation,	NOTES>> N	o alterations
	·		Condition	al Category					
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% by any of the char in the parameter 80% of banks si	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The CIs and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
						-	RC	I= (Sum of all C	l's)/5
							COMPENSATI	ON REQUIRE	MENT (CR) >>

INSERT PHOTOS:











right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Impact/SAR Cowardin Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 02080205 3/18/2022 Impact EW.4 80 Stream Name and Information Name(s) of Evaluator(s) Impact Plate C1.11/Impact EW.4 David Kwasniewski, PWD and Kristen Walls, WPI7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benche Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Recent alluvium accumulation was observed in the channel bed. Stream velocity varies throughout reach. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Mostly Optimal Marginal Low Marginal: Poor hardwoods. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% 1.50 CI 100% Rt Bank CI > % Riparian Area> Left Bank Lt Bank CI > 1.50 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Grade root mats; SAV; riffle poole complexes, stable features controls with leaf pack **Conditional Category** were observed Optimal Suboptimal Marginal Poor Instream throughout reach. Minor Habitat/ undercuts were Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically prese present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat observed in the outer are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover meandors. populations populations. 1.5 1.2 0.9 0.5 1.20

Score

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposa	al Facility, LLC	Cumberland Co.	R3	02080205	3/18/2022	Impact EW.4	80	1
	ALTERATION: Stream crossi poil piles, constrictions, livestock	ings, riprap, concr	ete, gabions, or c	concrete blocks, s	traightening of cha	annel, channeliza	ation,	NOTES>> N	o alterations.
			Conditiona	al Category					
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be roun	ided to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							RC	I= (Sum of all C	l's)/5
							COMPENSAT	ION REQUIRE	MENT (CR) >>

INSERT PHOTOS:







looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial Cowardin Impact/SAR Impact Project # **Project Name** Locality SAR# HUC Class length **Factor** 2017-890 Green Ridge Recycling and Disposal Facility 02080205 3/18/2022 Impact EW.5 239 Stream Name and Information Name(s) of Evaluator(s) Impact Plate C1.11/Impact EW.5 David Kwasniewski, PWD and Kristen Walls, WPI7 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Poor Optimal Suboptimal Marginal Severe Slightly incised, few areas of active Often incised, but less than Severe of Overwidened/incised eeply incised (or excavated) Poor. Banks more stable than Sever or Poor due to lower bank slopes. Vertically/laterally unstable. Likely to widen further. Majority of both banks n or unprotected banks. Majorit vertical/lateral instability. Severe 'ery little incision or active erosion: 8 of banks are stable (60-80%). Vegetative protection or natural rock incision, flow contained within the banks. Streambed below average Channel 100% stable banks. Vegetative Erosion may be present on 40-60% of are near vertical. Erosion present on Condition surface protection or natural rock prominent (60-80%) AND/OR both banks. Vegetative protection or 60-80% of banks. Vegetative rooting depth, majority of banks rominent (80-100%). AND/OR Stabl point bars/bankfull benches are Depositional features contribute to 40-60% of banks. Streambanks may protection present on 20-40% of vertical/undercut Vegetative ection present on less than 20% stability. The bankfull and low flow bevertical or undercut. AND/OR 40banks, and is insufficient to prevent present. Access to their original channels are well defined. Stream 60% of stream is covered by sediment. Sediment may be erosion. AND/OR 60-80% of the stream is covered by sediment. banks, is not preventing erosion floodplain or fully developed wide ikely has access to bankfull benches Obvious bank sloughing present Erosion/raw banks on 80-100%. bankfull benches. Mid-channel bars and transverse bars few. Transient or newly developed floodplains along temporary/transient, contribute Sediment is temporary/transient in nature, and contributing to instability AND/OR V-shaped channels have portions of the reach. Transient stability. Deposition that contribute t AND/OR Aggrading channel, Greate sediment deposition covers less than diment covers 10-40% of the stream stability, may be forming/present. AND/OR V-shaped channels have than 80% of stream hed is covered by 10% of bottom deposition, contributing to instability vegetative protection is present on > CI regetative protection on > 40% of the 10% of the banks and stable sedime Multiple thread channels and/or subterranean flow. deposition is absent 2.4 3 2.0 Score NOTES>> Channel does not have access to the floodplain. Active erosion observed along outer meandors. 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Mostly Marginal Low Marginal: Optimal Poor hardwoods. High Poor: Low Suboptimal Riparian areas Non-maintained, dense herbaceou ligh Suboptima High Marginal Riparian areas and maintained Low Poor: with tree stratum Non-maintained vegetation. with tree stratum areas, nurseries Impervious (dbh > 3 inches) present, with > 30% tree canopy nse herbaced no-till cropland (dbh > 3 inches) surfaces, mine vegetation with acking shrub and ree stratum (dbh > 3 inches) presen resent, with 30% actively grazed spoil lands, Riparian either a shrub tree stratum, hay with > 60% tree canopy cover and a non-maintained understory. Wetlands to 60% tree pasture, sparsely enuded surface cover and a maintained layer or a tree layer (dbh > 3 roduction, pond open water. If vegetated non-maintained area **Buffers** row crops, active feed lots, trails, or located within the riparian areas containing both understory. inches) present present, tree herbaceous and Recent cutover (dense vegetation). recently seeded other comparable stratum (dbh >3 inches) present, with <30% tree shrub layers or a non-maintained and stabilized, o conditions. canopy cover other comparable with <30% tree understory condition. canopy cover wit maintained High High Low Low High Low Condition 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 100% 100% Right Bank 1.5 Score > 100% Rt Bank CI > 1.50 CI 100% % Riparian Area> Left Bank Lt Bank CI > 1.50 1.5 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; NOTES>> Woody debris root mats; SAV; riffle poole complexes, stable features and leaf pack were **Conditional Category** observed. Varying Optimal Suboptimal Marginal Poor Instream gravel size in riffles. Habitat/ Case building (gravels) Habitat elements listed above are Stable habitat elements are typically Stable habitat elements are typically Available Habitat elements are typically preser present in 30-50% of the reach and present in 10-30% of the reach and lacking or are unstable. Habitat caddis fly larvae were are adequate for maintenance of ents are typically present in less than 10% of the reach. in greater than 50% of the re are adequate for maintenance of Cover observed in reach. populations populations. 1.5 1.2 0.9 0.5 1.20 Score .

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
2017-890	Green Ridge Recycling and Disposal Facility, LLC		Cumberland Co.	R4	02080205	3/18/2022	Impact EW.5	239	1	
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock										
	Conditional Category									
	Negligible Minor Moderate Severe						Severe			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any	is disrupted by any	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH										
NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >>										
RCI= (Sum of all Cl's)/5										
							COMPENSAT	ION REQUIRE	MENT (CR) >>	

INSERT PHOTOS:



looking upstream



looking downstream



left bank looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

		For us	e in ephemeral s	treams				
Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
2017-890	Green Ridge Recycling and Disposal Facility	Cumberland Co.	R6	02080205	3/18/2022	Impact EW.6	132	1

Stream Name and Information Name(s) of Evaluator(s)

Impact Plate C1.1/Impact EW.6 David Kwasniewski, PWD and Kristen Walls, WPIT

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

			nditional Cate					NOTES>> P	inus taeda
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	(80%) hardw	oods (20%).
Riparian Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Marginat: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparselly vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		, ,
		High	Low	High	Low	High	Low	+	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5		
Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. Enter the % Riparian Area and Score for each riparian category in the blocks below.						Ensure the sums of % Riparian Blocks equal 100			
	% Riparian Area> 100%	T					100%		
Right Bank	Score > 1.5						100%	1	
	CI= (Sum % RA * Scores*0.01)								
	% Riparian Area> 100%						100%	Rt Bank CI >	1.50
Left Bank	Score > 1.5							Lt Bank CI >	1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >> 0.75

99

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:



looking upstream



left bank looking downstream



looking downstream



right bank looking downstream

DESCRIBE PROPOSED IMPACT: